CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR-03/1093a/CEMENT/2015-16 Date: 11.03.2016

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer**, Yelahanka New Town Sub Division, BBMP, Bangalore.
*AGENCY	:	**Technical Manager (West),** KRIDL, Bangalore.
*NAME OF THE WORK	:	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
*REFERENCE	:	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	10.03.2016
PERIOD OF TESTING	:	10.03.2016 to 11.03.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	29.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	155 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-40/31 (Part -5) A1988(RA-2009)	490 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

Note:

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR-03/1093a/SAND-Gradation/2015-16 : 11.03.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	: BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	: IS : 2386 Part 1 - 1963 RA-2007
Sample ID	: Fine Aggregates
Sample Received on	: 10.03.2016
Date of Testing	: 11.03.2016

Total Wt. of Aggregates in gms 1000

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.20	90-100	90-100	90-100	95-100
2.36	76.00	60-95	75-100	85-100	95-100
1.18	57.40	30-70	55-90	75-100	90-100
600 Micron	31.90	15-34	35-59	60-79	80-100
300 Micron	18.40	5-20	8-30	12-40	15-50
150 Micron	5.90	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR-03/1093a/AGG/GR/2015-16 : 11.03.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	: BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	: IS : 2386 Part 1 -1963 RA-2007
Sample ID	: Coarse Aggregates (40mm)
Sample Received on	: 10.03.2016
Date of Testing	: 11.03.2016

Total Wt. of Aggregates in gms= **10000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.50	95-100	85-100
20	39.00	30-70	0-20
10	14.05	10-35	0-5
4.75	4.10	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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Job No.: CTCE/BBMP/W.No.03/KRIDL /STEEL/2015-16 12.03.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer**, Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	:	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore
Reference	:	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Date of Test	:	12.03.2016
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	514	557	13.20	O.K	O.K

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Job No.: CTCE/BBMP/W.No.03/KRIDL /STEEL/2015-16 12.03.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer**, Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	:	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	:	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Date of Test	:	12.03.2016
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	16	1.58	520	563	13.50	O.K	O.K

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T-2377

Job No.: CTCE/BBMP/W.No.043KRIDL/CSR-04/022e/CUBE/2015-16 27.04.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
* Reference	: BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
* Sample ID	: Culvert Bed Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 27.04.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.03.2016	27.04.2016	8.135	475.5	21.13
2	30.03.2016	27.04.2016	8.263	492.3	21.88
3	30.03.2016	27.04.2016	8.354	512.3	22.77

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Job No.: CTCE/BBMP/W.No.043KRIDL/CSR-04/022e/CUBE/2015-16 25.04.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

* Agency : **Technical Manager (West),** KRIDL, Bangalore.

* Name of the work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

* Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

* Sample ID : Culvert Deck Slab Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

* Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sample Received on : 25.04.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	28.03.2016	25.04.2016	8.180	485.5	21.58
2	28.03.2016	25.04.2016	8.235	502.3	22.32
3	28.03.2016	25.04.2016	8.335	512.3	22.77

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7185

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	230	230	3.2	96.8	95-100
22.4	2515	2745	38.2	61.8	60-80
11.2	1210	3955	55.0	45.0	40-60
4.75	985	4940	68.8	31.2	25-40
2.36	680	5620	78.2	21.8	15-30
0.600	655	6275	87.3	12.7	8-22
0.075	630	6905	96.1	3.9	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7070

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	230	230	3.3	96.7	95-100
22.4	2250	2480	35.1	64.9	60-80
11.2	1185	3665	51.8	48.2	40-60
4.75	1020	4685	66.3	33.7	25-40
2.36	785	5470	77.4	22.6	15-30
0.600	695	6165	87.2	12.8	8-22
0.075	525	6690	94.6	5.4	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7950

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	160	160	2.0	98.0	95-100
22.4	2650	2810	35.3	64.7	60-80
11.2	1210	4020	50.6	49.4	40-60
4.75	1180	5200	65.4	34.6	25-40
2.36	855	6055	76.2	23.8	15-30
0.600	800	6855	86.2	13.8	8-22
0.075	715	7570	95.2	4.8	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7885

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	215	215	2.7	97.3	95-100
22.4	2505	2720	34.5	65.5	60-80
11.2	1310	4030	51.1	48.9	40-60
4.75	1000	5030	63.8	36.2	25-40
2.36	925	5955	75.5	24.5	15-30
0.600	895	6850	86.9	13.1	8-22
0.075	800	7650	97.0	3.0	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **7760**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	265	265	3.4	96.6	95-100
22.4	2505	2770	35.7	64.3	60-80
11.2	1095	3865	49.8	50.2	40-60
4.75	1005	4870	62.8	37.2	25-40
2.36	990	5860	75.5	24.5	15-30
0.600	980	6840	88.1	11.9	8-22
0.075	615	7455	96.1	3.9	0-8

Note:

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2015-16 28.03.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7830

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	155	155	2.0	98.0	95-100
22.4	2550	2705	34.5	65.5	60-80
11.2	1210	3915	50.0	50.0	40-60
4.75	1085	5000	63.9	36.1	25-40
2.36	990	5990	76.5	23.5	15-30
0.600	750	6740	86.1	13.9	8-22
0.075	700	7440	95.0	5.0	0-8

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GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 8925

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	1.8	98.2	95-100
22.4	2850	3015	33.8	66.2	60-80
11.2	1205	4220	47.3	52.7	40-60
4.75	1210	5430	60.8	39.2	25-40
2.36	1005	6435	72.1	27.9	15-30
0.600	1010	7445	83.4	16.6	8-22
0.075	980	8425	94.4	5.6	0-8

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GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

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Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 7375

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	110	110	1.5	98.5	95-100
22.4	2510	2620	35.5	64.5	60-80
11.2	1020	3640	49.4	50.6	40-60
4.75	990	4630	62.8	37.2	25-40
2.36	790	5420	73.5	26.5	15-30
0.600	850	6270	85.0	15.0	8-22
0.075	800	7070	95.9	4.1	0-8

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GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 8260

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	160	160	1.9	98.1	95-100
22.4	2550	2710	32.8	67.2	60-80
11.2	1020	3730	45.2	54.8	40-60
4.75	1250	4980	60.3	39.7	25-40
2.36	1030	6010	72.8	27.2	15-30
0.600	990	7000	84.7	15.3	8-22
0.075	910	7910	95.8	4.2	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/AIV/2015-16 28.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP,
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix Macadam
Date of Testing	28.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	20.63	20.84	
	$100^* (W_2/W_1)\%$			20.74

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.

Reference : BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016

Date of Testing : 28.03.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 8165

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	135	135	1.7	98.3	95-100
22.4	2510	2645	32.4	67.6	60-80
11.2	1050	3695	45.3	54.7	40-60
4.75	1250	4945	60.6	39.4	25-40
2.36	935	5880	72.0	28.0	15-30
0.600	910	6790	83.2	16.8	8-22
0.075	855	7645	93.6	6.4	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/AIV/2015-16 28.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP,
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix Macadam
Date of Testing	28.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	20.58	20.79	
	$100^* (W_2/W_1)\%$			20.68

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Aggregate Impact Value

IS: 2386 Part IV

Customer	Asst. Executive Engineer, Yelahanka New Town Sub Division, BBMP,
Agency	Technical Manager (West), KRIDL, Bangalore.
Name of the Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix Macadam
Date of Testing	28.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	21.82	22.02	
	$100^* (W_2/W_1)$%			21.92

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP,
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix Macadam
Date of Testing	28.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines	20.84	20.94	
	$100^* (W_2/W_1)$%			20.89

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP,
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix Macadam
Date of Testing	28.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	22.02	22.22	
	$100^* (W_2/W_1)$%			22.12

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/S-T/2015-16 29.03.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	29.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = 11.06%

Elongation Index = 13.52%

Result : Combined Flakiness & Elongation index 24.58%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

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Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಯಲಹಂಕ ಉಪನಗರ ಉಪವಿಭಾಗ,
ಬೃ.ಬಿ.ಎಂ.ಪಿ. ಬೆಂಗಳೂರು-೫೬

Assistant Engineer
Ward No. 03
Yelahanka Satellite Town
Sub-Division, BBMP
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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	29.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.85%**

Elongation Index = **13.09%**

Result : Combined Flakiness & Elongation index 24.94%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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ಜ.ಜ.ಎಂ.ಪಿ. ಬೆಂಗಳೂರು-106

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Development and Improvements to roads and drains in main roads and cross roads of Ward No.03 Attur, BBMP, Bangalore.
Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	29.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.34%**

Elongation Index = **13.82%**

Result : Combined Flakiness & Elongation index 26.16%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	29.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.35%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index 25.60%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Reference	BBMP/AEE/YNSD/525/2015-16 Dated: 10.03.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	29.03.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.05%**

Elongation Index = **13.28%**

Result : Combined Flakiness & Elongation index **24.33%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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